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Groot, Wim; Maassen van den Brink, Henriette

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HEALTH-ADJUSTED LIFE EXPECTANCY IN BRITAIN, 1991-1998*

by

Wim Groot**, Faculty of Health Sciences, Dept. of H.O.P.E., Maastricht University, and "Scholar" Research Center for Education and Labor Market, Faculty of Economics, University of Amsterdam

Henriëtte Maassen van den Brink, "Scholar" Research Center for Education and Labor Market, Faculty of Economics, University of Amsterdam

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Abstract

In this paper changes in the quality of health adjusted life expectancy of the British population between 1991 and 1998 are analyzed. It is found that at all given age levels life expectancy increased during this period. Life expectancy at birth increased by 1 year for women and by 1.5 years for men. It is further found that the prevalence of health problems and handicaps has increased during the 1990s. For all age categories distinguished the self-assessment of the quality of health also declined, on average. We finally find that quality adjusted life expectancy declined between 1991 and 1998 rather than increased.

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** Address: Wim Groot, Faculty of Health Sciences, Dept. of H.O.P.E., Maastricht University, P.O. Box 616, 6200 MD Maastricht, The Netherlands; Telephone number: +31 - 43 - 388 1588/1727; Fax number: +31 - 43 - 367 0960; E-mail: w.groot@beoz.unimaas.nl. Henriëtte Maassen van den Brink, Faculty of General Economics, University of Amsterdam, Roetersstraat 11, 1018 WB Amsterdam, the Netherlands; E-mail: h.maassenvandenbrink@uva.nl.

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In this paper changes in the quality of health adjusted life expectancy of the British population between 1991 and 1998 are analyzed. It is found that at all given age levels life expectancy increased during this period. Life expectancy at birth increased by 1 year for women and by 1.5 years for men. It is further found that the prevalence of health problems and handicaps has increased during the 1990s. For all age categories distinguished the self-assessment of the quality of health also declined, on average. We finally find that quality adjusted life expectancy declined between 1991 and 1998 rather than increased.

1. Introduction

Like in many other western countries health care expenditures in Britain have risen substantially over the past decade. Between 1991 and 1999 expenditures on the National Health Service increased by 0.6 – 6.7% annually, while expenditures per capita increased by £4.35 – 42.91 annually. In 1991 health care expenditures per capita amounted to £688.22, by 1998 this had increased to £829.30.

In 2002, the British government announced a plan for even further increases in health care expenditures. It is planned that health care expenditures will increase by 7.4% annually in real terms between 2002-03 and 2007-08. Over this period expenditure on the National Health Service is planned to rise by 44% in real terms. The extra investment will increase health expenditure from 7.7% to 9.4% of gross domestic product in 2008 (Moore 2002).

An obvious question to ask is whether these expenditure increases really improve the health of the population? It is by no means obvious that higher health care expenditures lead to a better health. A classic example is Illich (1975), who claims that there is a negative causality: more health care leads to dependence, and this in turn leads to a decline in health. However, recent empirical studies suggest the opposite. For example, Rivera (2001) analyses the relation between public health expenditure and self-assessed health status. This study finds that higher per capita public health expenditures in a region are associated with better a physiological and physical health status. Using aggregate data, Berger & Messer (2002) basically confirm the cross-section data findings by Rivera (2001). Berger & Messer (2002) find that higher health care expenditures are associated with lower mortality rates.

However, this study also finds that countries where a larger share of health care expenditures is publicly financed have higher mortality rates.

It is difficult to prove that there is a direct causal relation between health care expenditure and the health status of the population. Health care expenditure also need not be the most important factor. Even if expenditures are high, barriers to access may be an impediment to health for all. However, the question can be asked whether during a period in which health care expenditures increased year by year, the health status of the population increased as well? In this paper we therefore analyze whether the health state of the British population has improved in the 1990s.

There is a small literature on the evolution of health in western countries during the past twenty years. This literature does not unequivocally show that the health of the population has improved over time.

Burström, Johannesson & Diderichsen (2003) compute the value of the change in health in Sweden between 1980 and 1997. This study finds that in this period life expectancy for infants in Sweden increased by 3.68 years for males and 2.70 years for females. Among older age groups average health status increased. However, among younger age groups average health status decreased. Expected quality-adjusted life years for infants increased by 2.64 years for males and 0.54 years for females. This study concludes that older persons in Sweden have experienced considerable health gains whereas the health gains have been small or non-existent for younger women.

Cutler & Richardson (1997, 1998) use ordered probit regressions to estimate the changes in the value of health capital in the United States between 1970 and 1990. This study finds that during this period quality-adjusted life years increased by

as much as 30%. This increase is to a large extent due to a decline in mortality rates. Using a 3% discount rate, health improved most for the elderly and least for children. The rate of female to male health was relatively constant over this period. At birth women and men have nearly equal health, while at age 65 women have more health capital than men.

In this paper we use the concept of health-adjusted life expectancy (HALE) as a summary measure to analyze the changes in the quality of health-adjusted life expectancy in Britain in the 1990s.1 HALE is a summary measure of population health. HALE estimates the average time in years that a person at a given age can expect to live in the equivalent of full health. The morbidity or quality of life component of HALEs is referred to as health-related quality of life (HRQL) or quality-adjusted life years weights (QALY weights). These QALY weights are combined with tables on life expectancy to create HALEs (for a review of the measures referred to here and others, see Gold, Stevenson & Fryback 2002). Changes in HALE can be decomposed into three factors: a change in life expectancy, changes in the prevalence of diseases at any given age, and the health state conditional on the prevalence of diseases and handicaps. As people live to an older age, the first factor contributes positively to the HALE. However, the increase in life expectancy is partly because the chances of surviving a serious illness are greater now than in the past. As a result the increase in life expectancy is partly due to an increase in life years lived in less than perfect health. Consequently, the prevalence of (chronic) diseases has increased. So the second factor is likely to contribute negatively to HALE. Finally, we may expect that health conditional on having survived a serious illness has

1 See Rosenberg, Fryback & Lawrence (1999) for an alternative method to calculate health adjusted life expectancy.

improved due to improved medical care. So, the first and the third factor are likely to increase HALE, while the second reduces it. The net effect is therefore ambiguous.

In the remainder of this paper we will present empirical data on the factors that contribute to HALE, i.e. we will analyze the evolution of life expectancy, the prevalence of diseases and handicaps and the (subjective evaluation) of the individual's health condition over the period 1991-1998. Data on the prevalence of diseases and handicaps and the self-assessments of the health status are combined to produce QALY weights. These QALY weights are used to calculate HALE by multiplying them by the figures on life expectancy.

2. The health capital model

In the empirical modeling of the quality of health three concepts are distinguished. The first is the true quality of health H^*. The true quality of health is a latent variable that can not be observed directly. What we observe are an objective measure of the health status of the individual, denoted by H^o, and a subjective measure of the quality of health, H^s. The objective health measure refers to the prevalence of a number of illnesses and handicaps among the respondents in our sample and their functional ability. H^o refers to a vector of dummy variables on illnesses and handicaps. The subjective measure of health, H^s, is measured by the response to the survey question: "Compared to people of your own age, would you say your health has on the whole been: 1) excellent, 2) good, 3) fair, 4) poor or 5) very poor?".

We assume that the latent quality of health variable is determined by the prevalence of diseases and handicaps and other individual characteristics:

$$H^* = \beta_0 + H^o \beta_1 + X \beta_2 + \varepsilon$$

X is a vector of individual characteristics, β are vectors of coefficients and ε is a standard normal distributed random term capturing unmeasured and unmeasurable effects on the true health status. The vector X includes variables for years of education, age, marital status, number of dependent children and country of birth.

The observed health status H^s is a categorical ordered response variable. The observed health variable is assumed to be related to the latent variable in the following way:

$$H^s = i \leftrightarrow \alpha_{i-1} < H^* \leq \alpha_i, \quad i = 0,....,n$$

where n is the number of response categories (i.e. n ranges from 1 to 5 for our subjective health measure) and α_i are threshold levels that demarcate the different response categories. We further assume that $\alpha_0 = -\infty$ en $\alpha_n = \infty$. This specification is know in the literature as the ordered probit model (McKelvey & Zavoina 1975).

We follow Cutler & Richardson (1997, 1998) in calculating QALY weights from the estimates of the β_1 coefficients. Let $\beta_0 + H^o\beta_1 + X\beta_2$ represent the impact of health problems, handicaps and other individual characteristics on health. As $\beta_0 + H^o\beta_1 + X\beta_2$ is not scaled and can range from $-\infty$ to ∞, the representation of the impact of

health problems needs to be normalized to produce a QALY weight. Following Cutler & Richardson (1997, 1998) we normalize by dividing them by the difference between the borderline between excellent health and that of a very poor health. It is thereby assumed that an excellent health corresponds to a near perfect health and a very poor health corresponds to near death. The individual QALY weights are defined as:

$$QALYWEIGHT = \frac{\beta_0 + H^o \beta_1 + X \beta_2 - \alpha_1}{\alpha_4 - \alpha_1}$$

The mean values of the QALY weights are taken as the quality of the health of the population.

The final step is to calculate the quality of health adjusted life expectancy (HALE). The HALE are calculated by multiplying the QALY weight by the age specific remaining life expectancy.

3. The data for calculating the quality of health

The data for calculating the QALY weights are taken from the 1991 and 1998 waves of the British Household Panel Survey (BHPS 1995). The BHPS - carried out by the Institute of Social and Economic Research at the University of Essex - is an annual longitudinal survey of each adult member of a nationally representative sample of more than 5,000 households (approximately 10,000 individuals) in Great Britain. The

same individuals are interviewed in successive waves. If they leave the household all adult members of their new household are also interviewed. Details about this survey can be found in Taylor (1992). The sample includes all individuals aged 15 and older. After eliminating a small number of observations with missing values on the self-reported health status and on the health condition variables, 5416 observations on females in 1991 and 5848 in 1998 could be used in the analyses. For males we have 4815 observations in 1991 and 5048 in 1998.

As was already mentioned, the subjective health measure H^s is defined by the response to the survey question "Compared to people of your own age, would you say that your health has on the whole been: 1) excellent, 2) good, 3) fair, 4) poor or 5) very poor?". According to Fayers & Sprangers (2002), "There is widespread agreement that this simple global question provides a useful summary of how patients perceive their overall health status. This view is also borne out by the large number of studies that have consistently shown, in a wide range of disease areas, that SRH [Self-Reported Health] is a powerful predictor of clinical outcome and mortality." One advantage of using self-assessments of health for calculating QALY weights is that the cognitive burden on respondents is lower than with other techniques, such as the standard gamble and the time trade-off methods. In Fryback et al. (1993) it is shown that the scores on this self-assessed overall quality of health correlate highly with the scores of other quality of life indicators that are frequently used in QALY analysis, such as the time trade-off assessment, the quality of well-being index and the outcomes of a general health perception questionnaire.

For the objective health measure H^o the response to the following survey question is used: “Do you have any of the health problems or disabilities listed on this card? (exclude temporary conditions)”. Respondents are shown a card with a list of conditions:

- Problems or disability connected with: arms, legs, hands, feet, back, or neck (including arthritis and rheumatism);
- Difficulty in seeing (other than needing glasses to read normal size print);
- Difficulty in hearing;
- Skin conditions/allergies;
- Chest/breathing problems, asthma, bronchitis;
- Heart/blood pressure or blood circulation problems;
- Stomach/liver/kidneys or digestive problems;
- Diabetes;
- Anxiety, depression or bad nerves;
- Alcohol or drug related problems;
- Epilepsy;
- Migraine or frequent headaches;
- Other health problems.

The categorization of the health problems and disabilities on this list is fairly broad. For example, heart and blood pressure problems includes people with high blood pressure and patients with severe cardiovascular diseases. A more detailed classification of health problems and disabilities would, however, have required a much larger sample size in order to obtain sufficiently large cell sizes.

4. Estimation results

In this section we discuss the changes of mortality and morbidity over the period 1991-1998 for men and women. We also present the results of the ordered probit estimates of subjective health. These probit estimates are used to calculate gender and age group specific QALY weights.

Life expectancy

Table 1 contains the life expectancy – at birth and conditional on attaining a certain age - for men and women in 1991 and 1998. For men life expectancy at birth increased by 1.5 years from 73.2 years in 1991 to 74.7 years in 1998. For women it increased by 1 year, from 78.7 to 79.7 years. If we look at the increases in life expectancy for different age groups, we see that at all age levels the conditional life expectancy increased. The largest increase in life expectancy occurred for men at age 20 and 30: for these age groups the conditional life expectancy increased by 1.4 years. Among women we find that for all ages between 5 and 60 the conditional life expectancy increased by 0.7 to 0.9 years.

Table 1 around here

Self-assessed quality of health

The figures on life expectancy show a notable increase. However, if we look at the quality of health a somewhat different picture emerges. In table 2 and 3 the frequency distribution of the self-assessed health status for men and women in 1991

and 1998 are presented. In order to make the figures on self-assessed health as comparable as possible with the figures on life expectancy, we present figures by five age groups.

If we look at the distribution of health for all age groups combined, we find that for both men and women self-assessed health has deteriorated between 1991 and 1998. In 1991 nearly 32% of the men in the sample evaluated their health as 'excellent', while another 44.5% rated it as 'good'. Less than 7% of the men in 1991 rated their health as '(very) poor'. By 1998 the share of men in excellent or good health had declined and the number of men in (very) poor health had gone up. In 1998 less than 25% of the men rated their health as excellent and 46.6% said to be in good health. The share of men in (very) poor health had increased to 9.7%. A similar trend can be observed among women. The percentage of women in excellent health declined from 25.7% in 1991 to 19.0% in 1998, while the percentage of women in (very) poor health increased from 9.6% to 11.7%.

Tables 2 and 3 around here

One potential explanation for the deterioration of health is the increase in life expectancy. If this increase is mainly caused by in increase life years spent in less than perfect health, we may expect the subjective evaluation to deteriorate over time. We would then expect that the evaluation of health status within age groups to remain constant. This is not what the figures in table 2 and 3 show, however. Both among men and among women we find that in all of the six age groups distinguished the share of people in excellent health declined between 1991 and 1998, while the share of people in (very) poor health increased.

An alternative explanation for the deterioration of the self-assessment of health is that people have become more pessimistic about their own health. I.e. they evaluate the same objective health state more negatively in 1998 than in 1991. Whether this explanation holds can be seen if we compare the self-assessments with the prevalence of health problems and disabilities in 1991 and 1998.

The prevalence of health problems and disabilities

Table 4 contains the prevalence of health problems and disabilities among men in 1991 and 1998. Similar figures for women are found in table 5. The trends in the prevalence of these health impairments are remarkably similar for men and women. For both men and women we find an increase in the prevalence of problems with arms, legs, etc, difficulty in hearing, skin conditions and allergies, heart and blood pressure circulation problems, stomach, liver and kidney problems, diabetes, nerves and anxiety problems and depression. One example is the increase in the prevalence of diabetes among men. The prevalence of diabetes among men increased from 1.9% to 2.9% in 1998. Also in all age groups the prevalence increased. Among men aged 25-40, for example, it doubled from 0.6% to 1.2%.

Tables 4 and 5 around here

Only difficulty in seeing is less frequently reported in 1998 than in 1991. On a few health impairments the trends differ between men and women. Among men the prevalence of chest and breathing problems declined, while this increased among women. Alcohol and drug use increased slightly among men, but remained constant

among women. Epilepsy increased somewhat among women but remained constant among men. Finally, migraine and chronic headaches declined among men but increased among women. The overall picture that emerges is that both among men and among women the prevalence of health problems and disabilities has increased between 1991 and 1998. This contradicts the idea that the deterioration of the self-assessed health status in table 2 and 3 is merely because people have become more pessimistic and have changed the interpretation they attach to notions like 'excellent' and 'poor' health. It suggests that the negative change in self-assessed quality of health reflects a deterioration of the true health status.

As expected, the prevalence of health problems and disabilities is higher among older age groups than among the younger ones. However, if we look within age groups, we see similar trends as for the sample as a whole. For most age groups health problems and disabilities the prevalence increased between 1991 and 1998. Only for a few age groups the prevalence decreased over the period 1991-1998.

Ordered probit estimates of self-assessed quality of health

The ordered probit estimates are used to calculate Quality of Life weights. The estimation results of the probit equations on self-assessed health status for men and women are found in table 6 and 7, respectively. Health problems and disabilities generally lower the self-reported health status. Especially, problems connected with arms, legs, hands, feet, back, or neck, chest and breathing problems such as asthma and bronchitis, heart problems and blood pressure or blood circulation problems, stomach, liver, kidneys or digestive problems, diabetes, problems caused by anxiety, depression or bad nerves and epileptic problems have strong negative effects on the self-assessment of the health status.

Tables 6 and 7 around here

We further find that years of education generally has a positive, and among men in particular, a statistically significant effect on self-assessed health. In most of the equations age has a positive effect on health as well. This is surprising as one might expect health to decline with age. Two explanations can be given for this unexpected finding. First, the age effect is conditional on the prevalence of health problems and handicaps. Secondly, the subjective health state question explicitly asks respondents about their health "compared to people of your own age". This introduces a source of age norming in the respondents' answers which causes the reverse sign of the age effect on health in the estimations (see Groot 2000).

QALY weights

The probit estimates are used to calculate QALY weights. Table 8 contains the average QALY weights by age group for men and women. Three conclusions can be drawn from the results in this table. First, we find – as expected - that the QALY weights are lower for older age groups than for younger ones. For example, in 1991 the average QALY weight for men aged 25 or younger is 0.889, while for men aged 75 and older it is 0.663. For both men and women we find for both years that the average QALY weight of an older age group is always lower than that of a younger one.

Table 8 around here

Secondly, we find that the average QALY weights for women are always less than the corresponding average QALY weights for men. This reflects the lower health status and the higher prevalence of health problems and disabilities among women.

Finally, we find that for both men and women and for all age groups the average QALY weight in 1998 is lower than the average QALY weight in 1991. This corresponds to the lower self-rating of health and the higher prevalence of health problems and disabilities in 1998 compared to 1991.

HALE

Finally, we calculate the quality of health adjusted life expectancy (HALE). This is done by multiplying the life expectancy figures in table 1 with the age group specific QALY weights in table 8. An example illustrates how the HALE is calculated. The life expectancy at birth of men in 1991 is 73.2 years. Of these, 25 years are spent with an average QALY weight of 0.889. The next 15 years are spent with QALY weight 0.858, and so on. Finally, the last years of the life expectancy are spent in average QALY weight of 0.670.

The quality of health adjusted life expectancies are found in table 9. As might be expected - based on the differences in self-assessed health, the prevalence of health problems and disabilities and the QALY weights - the differences between men and women in quality adjusted life expectancy are less than the male-female differences in life expectancy that were found in table 1. We find that below the age of 30, quality adjusted life expectancy of men actually exceeds the quality adjusted life expectancy of women. After the age of 30 we find that women have a longer quality adjusted life expectancy.

A second conclusion that can be drawn is that quality adjusted life expectancy has *declined* between 1991 and 1998 rather than increased. The increase in life expectancy in the 1990s has been more than off-set by a decline in quality of life.

Table 9 around here

5. Conclusion

In this paper we have used quality of health adjusted life expectancy (HALE) as a summary measure for health. We have used the HALE to calculate the changes in health of the British population in the 1990s. The most notable finding is that quality of health adjusted life expectancy has declined rather than increased in the 1990s.

This finding contradicts some of the findings in the influential Wanless report 'Securing good health for the whole population' (Wanless 2003). In this report it is stated that: "In the UK healthy life expectancy at birth is increasing. In 1999, the number of years males could expect to live in good or fairly good health was 66.6 years, compared to 64.4 years in 1981. For females, the equivalent figures were 68.9 and 66.7 years" (Wanless 2003, p. 19). However, the Wanless report also notes that the prevalence of all major disease groups – including musculoskeletal disorder, heart and circulatory disease and respiratory disease – increased between 1994 and 1998 (Wanless 2003, p. 21-22). Also the prevalence of Type2 diabetes is increasing. It is even noted that the most deprived fifth of the population have a 50 percent increased risk of Type 2 diabetes (Wanless 2003, p. 22).

A major reason for the decline in HALE is that - for both men and women - the self-assessed health status has declined and the prevalence of diseases and handicaps has increased for all age groups distinguished. A natural question to ask is how reliable these figures on self-assessed health are? Our data do not allow us to test the reliability of the self-assessment of health, other than that we find that the prevalence of health problems and disabilities are good predictors of the self-assessment. Crossley & Kennedy (2002) analyze the reliability of self-assessed health status using Australian data in which a random sub-sample of respondents answer a standard self-assessed health question twice – before and after an additional set of health related questions. This study finds that 28% of the respondents change their response: 13.6% report a higher level of health whilst 14.8% report a lower level of health after a general health and well-being questionnaire is answered. As about the same number of respondents change their self-assessment upwards as downwards, the null-hypotheses that the means of both distributions are the same can not be rejected. They do find, however, that the null hypotheses that the distributions are the same is strongly rejected. We conclude from this that at least the means of the distribution provide reliable information about the health status of the sample as a whole. In our study we find that for all gender and age groups, the means of the self-assessed health state declined between 1991 and 1998.

Another potential point of criticism concerns the fact that respondents are asked to evaluate their health relative to others with the same age ("Compared to people of your own age, would you say your health has on the whole been…."). It is possible that because of some exogenous change – for example a dramatic improvement of

medical technology – the health status of the whole population increases uniformly. By asking people to compare their own age with that of others, a uniform increase in health status may leave the relative distribution unchanged (some people still consider themselves being in poor health compared to other although their health status has improved).

We consider the source of bias to be only minor. First, we compare the health status of the people over a relatively short period of time. It is unlikely that dramatic improvements in medical technology have occurred that have affected the health of the entire population. Secondly, one may expect such uniform change to be in the direction of a general health improvement, not in a deterioration of the health status. Our findings show a decline in subjective health. Thirdly, people are asked to compare their health with that of people their own age. One way to eliminate this source of bias is to compare the changes in health status over time for similar age groups. We find that in all age groups, self reported health has declined. Finally, as has been noted before, we do not only find that the self-assessment of the health status has deteriorated, the prevalence of diseases and handicaps has increased as well.

Finally, we may ask why self-assessed health has deteriorated and why the prevalence of most health problems and handicaps has increased in the 1990s? Three possible explanations suggest itself. First, as was already noted before, the increase in life expectancy is for a large part an increase in life expectancy in less than perfect health. This means an increase in the prevalence of chronic diseases in the population. A second explanation is that – because of improved medical technology and a greater awareness of the risks of health problems among the

population – diseases are nowadays diagnosed sooner and better than before. A final explanation is that the life style of the population has become less healthy – i.e. an increase in alcohol consumption and obesity – which has led to an increase in (chronic) diseases.

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Table 1 Life expectancy in years in Britain 1991-1998, by gender and age

	At birth	*At age*						
		5	*20*	*30*	*50*	*60*	*70*	*80*
				Men				
1991	73.2	68.9	54.2	44.7	26.0	17.7	11.1	6.4
1998	74.7	70.3	55.6	46.1	27.4	18.9	11.9	6.7
				Women				
1991	78.7	74.3	59.5	49.7	30.6	21.9	14.3	8.2
1998	79.7	75.2	60.3	50.5	31.4	22.6	14.7	8.4

Source: National Statistics Britain

Table 2 Frequency distribution subjective health status 1991-1998, men by age group

	All	*Age group*					
		25 or younger	*25 - 40*	*40 - 55*	*55 - 65*	*65 - 75*	*Older than 75*
			1991				
Very poor	1.9%	0.5%	1.2%	1.9%	3.0%	3.6%	5.5%
Poor	5.1%	2.5%	2.5%	5.7%	8.7%	9.7%	10.2%
Fair	16.7%	15.3%	13.2%	15.4%	19.6%	28.1%	20.8%
Good	44.5%	44.5%	48.0%	44.0%	41.8%	39.3%	42.4%
Excellent	31.8%	37.2%	35.1%	33.1%	26.9%	19.2%	21.2%
#observations	4832	915	1453	1183	572	473	236
			1998				
Very poor	2.4%	0.4%	1.0%	3.2%	3.5%	4.9%	5.2%
Poor	7.3%	4.5%	5.1%	7.6%	11.3%	9.7%	15.1%
Fair	19.0%	16.1%	16.3%	15.8%	24.6%	29.4%	27.1%
Good	46.6%	51.1%	48.2%	47.1%	41.5%	41.4%	40.9%
Excellent	24.7%	27.8%	29.4%	26.2%	19.0%	14.6%	11.7%
#observations	5050	898	1546	1244	564	507	291

Table 3 Frequency distribution subjective health status 1991-1998, women by age group

	All	*Age group*					
		25 or younger	*25 - 40*	*40 - 55*	*55 - 65*	*65 – 75*	*Older than 75*
			1991				
Very poor	2.3%	0.6%	1.2%	1.8%	4.1%	4.8%	5.6%
Poor	7.3%	5.1%	5.5%	8.3%	5.5%	11.1%	12.6%
Fair	19.3%	18.8%	15.0%	17.2%	22.5%	25.7%	28.6%
Good	45.4%	47.1%	47.0%	45.0%	46.5%	42.6%	39.6%
Excellent	25.7%	28.4%	31.4%	27.7%	21.5%	15.7%	13.6%
#observations	5424	887	1565	1300	641	619	412
			1998				
Very poor	3.0%	1.1%	2.0%	2.9%	3.3%	4.4%	8.2%
Poor	8.7%	6.3%	6.7%	8.4%	9.7%	12.2%	15.1%
Fair	22.3%	16.9%	18.4%	22.2%	26.1%	28.6%	33.0%
Good	47.0%	52.8%	49.0%	47.6%	45.2%	43.8%	34.3%
Excellent	19.0%	23.0%	23.9%	18.9%	15.6%	11.0%	9.4%
#observations	5848	944	1743	1392	639	608	522

Table 4 Prevalence of health problems and disabilities 1991-1998, men

	All	*Age*					
		≤ 25	*25 - 40*	*40 - 55*	*55 - 65*	*65 - 75*	*75 >*
				1991			
Problems with arms, legs, etc.	0.208	0.081	0.140	0.223	0.345	0.362	0.394
Difficulty in seeing	0.068	0.049	0.036	0.068	0.081	0.108	0.216
Difficulty in hearing	0.088	0.022	0.034	0.075	0.138	0.210	0.377
Skin conditions, allergies	0.078	0.102	0.087	0.065	0.053	0.072	0.068
Chest, breathing problems	0.105	0.109	0.089	0.065	0.117	0.197	0.170
Heart, blood	0.108	0.009	0.030	0.105	0.224	0.320	0.275
Stomach, liver, kidney	0.053	0.020	0.043	0.051	0.089	0.110	0.055
Diabetes	0.019	0.002	0.006	0.017	0.037	0.049	0.081
Nerves, anxiety, depression	0.033	0.014	0.028	0.035	0.047	0.055	0.047
Alcohol, drugs	0.005	0.006	0.005	0.005	0.005	0.002	0.013
Epilepsy	0.007	0.012	0.006	0.006	0.004	0.006	0.013
Migraine, chronic headaches	0.043	0.037	0.052	0.047	0.037	0.032	0.021
Other	0.034	0.024	0.023	0.029	0.049	0.045	0.106
				1998			
Problems with arms, legs, etc.	0.255	0.080	0.163	0.280	0.420	0.443	0.522
Difficulty in seeing	0.044	0.021	0.023	0.039	0.041	0.085	0.179
Difficulty in hearing	0.097	0.021	0.034	0.077	0.166	0.228	0.388
Skin conditions, allergies	0.100	0.101	0.117	0.091	0.088	0.098	0.065
Chest, breathing problems	0.131	0.109	0.106	0.097	0.164	0.224	0.241
Heart, blood	0.135	0.006	0.034	0.118	0.295	0.396	0.375
Stomach, liver, kidney	0.066	0.015	0.047	0.089	0.086	0.112	0.117
Diabetes	0.029	0.007	0.012	0.023	0.049	0.085	0.072
Nerves, anxiety, depression	0.050	0.023	0.049	0.057	0.071	0.053	0.055
Alcohol, drugs	0.007	0.007	0.008	0.006	0.007	0.006	0.000

Epilepsy	0.007	0.009	0.012	0.002	0.007	0.002	0.007
Migraine, chronic headaches	0.047	0.033	0.056	0.053	0.032	0.053	0.031
Other	0.042	0.021	0.023	0.046	0.062	0.079	0.093

Table 5 Prevalence of health problems and disabilities 1991-1998, women

	All	*Age*					
		≤ 25	*25 - 40*	*40 - 55*	*55 - 65*	*65 - 75*	*75 >*
			1991				
Problems with arms, legs, etc.	0.249	0.083	0.102	0.274	0.395	0.459	0.542
Difficulty in seeing	0.078	0.046	0.035	0.062	0.080	0.137	0.264
Difficulty in hearing	0.067	0.026	0.021	0.038	0.081	0.141	0.283
Skin conditions, allergies	0.124	0.190	0.160	0.104	0.086	0.058	0.075
Chest, breathing problems	0.103	0.093	0.082	0.081	0.122	0.150	0.170
Heart, blood	0.126	0.037	0.035	0.090	0.217	0.343	0.310
Stomach, liver, kidney	0.057	0.037	0.044	0.058	0.073	0.073	0.097
Diabetes	0.016	0.003	0.004	0.012	0.038	0.029	0.046
Nerves, anxiety, depression	0.068	0.037	0.062	0.075	0.078	0.092	0.087
Alcohol, drugs	0.003	0.002	0.006	0.002	0.003	0.000	0.002
Epilepsy	0.007	0.012	0.005	0.009	0.006	0.002	0.000
Migraine, chronic headaches	0.109	0.118	0.127	0.131	0.105	0.061	0.029
Other	0.065	0.042	0.043	0.078	0.075	0.092	0.099
			1998				
Problems with arms, legs, etc.	0.313	0.086	0.169	0.301	0.518	0.591	0.661
Difficulty in seeing	0.055	0.015	0.024	0.028	0.075	0.095	0.232
Difficulty in hearing	0.074	0.028	0.025	0.047	0.075	0.158	0.293
Skin conditions, allergies	0.151	0.195	0.182	0.142	0.105	0.110	0.096
Chest, breathing problems	0.142	0.162	0.122	0.108	0.147	0.202	0.190
Heart, blood	0.163	0.028	0.044	0.132	0.265	0.425	0.458
Stomach, liver, kidney	0.087	0.045	0.063	0.076	0.122	0.151	0.157
Diabetes	0.026	0.009	0.009	0.019	0.041	0.074	0.061
Nerves, anxiety, depression	0.105	0.050	0.100	0.125	0.124	0.117	0.132
Alcohol, drugs	0.003	0.005	0.002	0.005	0.002	0.002	0.000

Epilepsy	0.009	0.013	0.010	0.011	0.003	0.007	0.000
Migraine, chronic headaches	0.131	0.143	0.149	0.152	0.106	0.099	0.056
Other	0.070	0.033	0.058	0.073	0.085	0.097	0.119

Table 6 Parameter estimates health status men, 1991-1998 (standard errors in brackets)

	All	*Age*					
		≤ 25	*25 - 40*	*40 - 55*	*55 - 65*	*65 - 75*	*75 >*
			1991				
Health problems and disabilities							
Problems with arms, legs, etc.	-0.691 (0.041)	-0.664 (0.135)	-0.603 (0.084)	-0.783 (0.079)	-0.690 (0.101)	-0.652 (0.111)	-0.765 (0.153)
Difficulty in seeing	-0.396 (0.064)	-0.058 (0.173)	-0.177 (0.159)	-0.366 (0.129)	-0.528 (0.170)	-0.607 (0.165)	-0.590 (0.190)
Difficulty in hearing	-0.091 (0.058)	-0.365 (0.251)	-0.226 (0.162)	-0.191 (0.123)	-0.053 (0.135)	0.158 (0.127)	-0.207 (0.155)
Skin conditions, allergies	-0.045 (0.060)	-0.065 (0.123)	0.142 (0.107)	-0.059 (0.132)	-0.222 (0.207)	-0.374 (0.200)	-0.016 (0.291)
Chest, breathing problems	-0.795 (0.052)	-0.816 (0.121)	-0.703 (0.102)	-0.857 (0.132)	-0.830 (0.150)	-1.044 (0.135)	-0.832 (0.196)
Heart, blood	-0.726 (0.054)	-1.474 (0.395)	-0.544 (0.172)	-0.904 (0.106)	-0.791 (0.115)	-0.886 (0.116)	-0.265 (0.164)
Stomach, liver, kidney	-0.689 (0.070)	-0.749 (0.267)	-0.770 (0.142)	-0.513 (0.146)	-0.853 (0.170)	-0.648 (0.166)	-1.004 (0.315)
Diabetes	-0.914 (0.114)	-0.897 (0.795)	-1.354 (0.391)	-1.011 (0.245)	-1.001 (0.250)	-1.014 (0.240)	-0.561 (0.265)
Nerves, anxiety, depression	-0.882 (0.088)	-1.002 (0.317)	-1.150 (0.177)	-0.734 (0.173)	-1.039 (0.222)	-0.568 (0.230)	-0.903 (0.338)
Alcohol, drugs	-0.364 (0.218)	1.563 (0.629)	-1.246 (0.411)	-0.707 (0.450)	-0.629 (0.644)	-	-0.019 (0.687)
Epilepsy	-0.993 (0.184)	-0.551 (0.333)	-1.370 (0.381)	-0.956 (0.405)	-1.056 (0.795)	-1.316 (0.638)	-1.455 (0.694)
Migraine, chronic headaches	-0.241 (0.078)	-0.052 (0.195)	-0.320 (0.132)	-0.240 (0.152)	-0.299 (0.247)	-0.479 (0.297)	0.342 (0.503)
Other	-0.848 (0.086)	-0.927 (0.236)	-0.731 (0.195)	-0.875 (0.189)	-0.684 (0.216)	-1.276 (0.250)	-0.916 (0.237)
Other control variables							
Years of education	0.039 (0.006)	0.015 (0.024)	0.032 (0.010)	0.040 (0.011)	0.035 (0.018)	0.057 (0.016)	0.074 (0.032)
Age	0.001 (0.001)	0.041 (0.015)	-0.012 (0.007)	0.011 (0.009)	0.025 (0.017)	0.007 (0.019)	0.019 (0.021)
Married	0.108 (0.040)	-0.123 (0.119)	0.091 (0.080)	0.063 (0.100)	0.513 (0.121)	0.271 (0.124)	0.031 (0.153)
Number of dependent children	-0.034 (0.020)	-0.032 (0.089)	-0.032 (0.030)	0.013 (0.039)	0.094 (0.258)	-0.099 (0.449)	-
Country of birth	-0.179 (0.081)	-0.219 (0.192)	-0.074 (0.131)	-0.185 (0.166)	-0.544 (0.251)	0.172 (0.378)	-0.502 (0.626)

Location parameters							
α_1	-2.577	-2.272	-2.940	-2.030	-1.205	-2.178	-0.714
	(0.099)	(0.376)	(0.291)	(0.451)	(1.062)	(1.344)	(1.697)
α_2	-1.787	-1.377	-2.314	-1.211	-0.175	-1.296	0.010
	(0.089)	(0.332)	(0.277)	(0.443)	(1.056)	(1.339)	(1.695)
α_3	-0.779	-0.226	-1.303	-0.300	0.861	-0.021	0.866
	(0.085)	(0.324)	(0.270)	(0.441)	(1.056)	(1.337)	(1.696)
α_4	0.632	1.118	0.198	1.095	2.281	1.459	2.331
	(0.085)	(0.325)	(0.268)	(0.441)	(1.058)	(1.339)	(1.699)
Number of observations	4814	911	1448	1177	571	471	236
- Loglikelihood	4376.5	622.3	1276.1	1095.5	548.3	483.0	276.0
Pseudo R^2	0.285	0.165	0.197	0.279	0.408	0.426	0.357
			1998				
Problems with arms, legs, etc.	-0.676	-0.744	-0.782	-0.739	-0.726	-0.387	-0.644
	(0.039)	(0.136)	(0.078)	(0.073)	(0.105)	(0.103)	(0.135)
Difficulty in seeing	-0.260	0.088	-0.167	-0.604	-0.078	-0.363	-0.161
	(0.078)	(0.262)	(0.193)	(0.165)	(0.240)	(0.186)	(0.175)
Difficulty in hearing	-0.132	-0.482	-0.210	-0.288	-0.092	-0.043	-0.081
	(0.055)	(0.256)	(0.154)	(0.118)	(0.132)	(0.118)	(0.135)
Skin conditions, allergies	0.044	-0.206	0.009	0.164	-0.048	-0.016	0.223
	(0.052)	(0.125)	(0.089)	(0.113)	(0.167)	(0.168)	(0.269)
Chest, breathing problems	-0.663	-0.301	-0.758	-0.711	-0.827	-0.658	-0.839
	(0.047)	(0.120)	(0.093)	(0.110)	(0.131)	(0.122)	(0.156)
Heart, blood	-0.692	-1.114	-0.937	-0.670	-0.751	-0.667	-0.524
	(0.050)	(0.486)	(0.161)	(0.101)	(0.106)	(0.103)	(0.138)
Stomach, liver, kidney	-0.793	-1.782	-0.949	-0.715	-0.789	-0.638	-0.557
	(0.064)	(0.315)	(0.136)	(0.114)	(0.171)	(0.159)	(0.211)
Diabetes	-0.492	-0.713	-0.816	-0.549	-0.517	-0.252	-0.548
	(0.095)	(0.444)	(0.260)	(0.215)	(0.227)	(0.180)	(0.253)
Nerves, anxiety, depression	-0.812	-1.353	-0.759	-1.063	-0.575	-0.669	-0.243
	(0.074)	(0.249)	(0.137)	(0.145)	(0.195)	(0.231)	(0.288)
Alcohol, drugs	-0.652	-1.456	-1.020	-0.241	0.295	0.075	-
	(0.196)	(0.443)	(0.313)	(0.421)	(0.665)	(0.666)	
Epilepsy	-0.420	-0.179	-0.377	0.006	-0.242	-1.073	-
	(0.179)	(0.393)	(0.252)	(0.645)	(0.549)	(1.111)	
Migraine, chronic headaches	-0.301	-0.312	-0.408	-0.255	-0.293	-0.244	0.511
	(0.073)	(0.206)	(0.123)	(0.141)	(0.267)	(0.220)	(0.380)
Other	-0.946	-0.497	-1.226	-1.072	-0.911	-0.733	-0.818
	(0.077)	(0.254)	(0.190)	(0.154)	(0.192)	(0.185)	(0.222)
Other control variables							
Years of education	0.017	0.087	-0.001	0.017	0.022	0.021	0.005
	(0.006)	(0.039)	(0.013)	(0.011)	(0.017)	(0.019)	(0.023)
Age	0.002	0.032	0.009	0.026	-0.006	0.013	0.031
	(0.001)	(0.014)	(0.007)	(0.008)	(0.016)	(0.017)	(0.017)
Married	0.079	0.002	0.083	0.117	0.064	0.142	-0.027
	(0.038)	(0.115)	(0.076)	(0.087)	(0.129)	(0.112)	(0.141)

Number of dependent children	-0.006 (0.018)	-0.131 (0.110)	-0.037 (0.027)	0.039 (0.036)	0.072 (0.118)	-0.187 (0.481)	-
Country of birth	-0.238 (0.633)	-0.023 (1.100)	-0.130 (0.786)	-	-	-	-
Location parameters							
α_1	-2.815 (0.102)	-1.859 (0.541)	-3.141 (0.288)	-1.621 (0.426)	-3.380 (0.987)	-1.733 (1.215)	-0.446 (1.385)
α_2	-1.830 (0.091)	-0.519 (0.494)	-1.985 (0.259)	-0.652 (0.418)	-2.371 (0.980)	-0.949 (1.212)	0.609 (1.380)
α_3	-0.829 (0.087)	0.509 (0.491)	-0.934 (0.254)	0.235 (0.417)	-1.277 (0.977)	0.221 (1.211)	1.587 (1.381)
α_4	0.663 (0.087)	2.017 (0.494)	0.584 (0.253)	1.781 (0.419)	0.227 (0.976)	1.681 (1.213)	3.086 (1.389)
Number of observations	5043	897	1543	1242	564	506	291
- Loglikelihood	4654.1	-500.8	1350.7	1229.5	580.5	565.4	349.8
Pseudo R^2	0.327	0.178	0.283	0.367	0.412	0.338	0.333

Table 7 Parameter estimates health status women, 1991-1998 (standard errors in brackets)

	All	*Age*					
		≤ 25	*25 - 40*	*40 - 55*	*55 - 65*	*65 - 75*	*75 >*
			1991				
Health problems and disabilities							
Problems with arms, legs, etc.	-0.681 (0.038)	-0.545 (0.137)	-0.843 (0.093)	-0.686 (0.073)	-0.666 (0.093)	-0.744 (0.094)	-0.480 (0.112)
Difficulty in seeing	-0.227 (0.057)	-0.036 (0.180)	-0.290 (0.151)	-0.275 (0.128)	-0.250 (0.162)	-0.197 (0.129)	-0.150 (0.126)
Difficulty in hearing	-0.197 (0.062)	-0.439 (0.234)	-0.389 (0.194)	-0.321 (0.157)	-0.133 (0.161)	-0.019 (0.128)	-0.135 (0.123)
Skin conditions, allergies	-0.114 (0.046)	-0.094 (0.097)	-0.120 (0.077)	-0.050 (0.102)	-0.086 (0.158)	-0.245 (0.192)	-0.248 (0.206)
Chest, breathing problems	-0.812 (0.050)	-1.071 (0.131)	-0.641 (0.102)	-0.812 (0.114)	-1.180 (0.140)	-0.839 (0.127)	-0.503 (0.144)
Heart, blood	-0.642 (0.047)	-0.992 (0.198)	-0.528 (0.151)	-0.781 (0.107)	-0.622 (0.108)	-0.601 (0.094)	-0.517 (0.119)
Stomach, liver, kidney	-0.789 (0.064)	-0.833 (0.198)	-0.925 (0.135)	-0.951 (0.132)	-0.678 (0.170)	-0.430 (0.170)	-0.802 (0.181)
Diabetes	-0.906 (0.118)	-0.947 (0.631)	-1.704 (0.452)	-1.121 (0.273)	-0.717 (0.233)	-0.629 (0.260)	-0.983 (0.257)
Nerves, anxiety, depression	-0.829 (0.059)	-1.069 (0.199)	-1.040 (0.117)	-0.788 (0.117)	-0.575 (0.165)	-0.641 (0.154)	-0.876 (0.191)
Alcohol, drugs	-0.642 (0.262)	-0.940 (0.779)	-0.562 (0.348)	-0.321 (0.770)	-1.404 (0.773)	-	-
Epilepsy	-0.995 (0.182)	-1.346 (0.332)	-1.275 (0.379)	-0.822 (0.326)	-0.894 (0.549)	-0.240 (1.075)	-
Migraine, chronic headaches	-0.299 (0.048)	-0.421 (0.117)	-0.202 (0.084)	-0.267 (0.091)	-0.654 (0.144)	-0.206 (0.182)	-0.265 (0.313)
Other	-0.843 (0.060)	-0.831 (0.188)	-0.994 (0.136)	-0.848 (0.113)	-0.662 (0.167)	-0.897 (0.153)	-0.699 (0.180)
Health problems and disabilities							
Years of education	0.036 (0.006)	0.045 (0.024)	0.016 (0.009)	0.042 (0.011)	0.050 (0.018)	0.054 (0.020)	0.036 (0.024)
Age	0.003 (0.001)	0.029 (0.016)	0.017 (0.007)	-0.006 (0.008)	0.035 (0.016)	-0.011 (0.016)	0.010 (0.014)
Married	0.002 (0.032)	-0.165 (0.091)	-0.002 (0.070)	0.013 (0.080)	0.060 (0.098)	-0.095 (0.090)	-0.188 (0.136)
Number of dependent children	-0.023 (0.017)	-0.103 (0.062)	-0.039 (0.025)	-0.051 (0.046)	0.168 (0.797)	-	-
Country of birth	-0.043 (0.079)	0.357 (0.238)	0.153 (0.119)	-0.481 (0.164)	-0.703 (0.255)	0.314 (0.326)	0.882 (0.543)

Location parameters							
α_1	-2.623	-2.705	-2.543	-3.180	-0.486	-3.353	-1.638
	(0.099)	(0.396)	(0.276)	(0.441)	(0.985)	(1.152)	(1.113)
α_2	-1.722	-1.338	-1.471	-2.092	0.101	-2.530	-0.846
	(0.091)	(0.344)	(0.255)	(0.430)	(0.983)	(1.149)	(1.110)
α_3	-0.741	-0.139	-0.551	-1.179	1.251	-1.520	0.148
	(0.088)	(0.337)	(0.251)	(0.427)	(0.983)	(1.146)	(1.109)
α_4	0.720	1.354	0.908	0.295	2.851	0.021	1.515
	(0.088)	(0.339)	(0.252)	(0.427)	(0.986)	(1.145)	(1.111)
Number of observations	5409	885	1558	1298	640	617	411
- Loglikelihood	5323.1	708.5	1359.5	1131.4	621.3	664.6	472.9
Pseudo R^2	0.313	0.292	0.250	0.332	0.379	0.349	0.261
			1998				
Problems with	-0.620	-0.563	-0.589	-0.810	-0.692	-0.386	-0.606
arms, legs, etc.	(0.035)	(0.131)	(0.073)	(0.069)	(0.093)	(0.096)	(0.104)
Difficulty in	-0.131	-1.077	-0.173	-0.212	-0.010	-0.178	0.144
seeing	(0.065)	(0.297)	(0.176)	(0.185)	(0.172)	(0.155)	(0.117)
Difficulty in	-0.175	-0.009	-0.375	-0.162	-0.182	-0.035	-0.157
hearing	(0.057)	(0.223)	(0.169)	(0.140)	(0.167)	(0.126)	(0.106)
Skin conditions,	-0.110	-0.061	-0.172	0.060	-0.123	-0.123	-0.416
allergies	(0.041)	(0.094)	(0.070)	(0.087)	(0.145)	(0.147)	(0.164)
Chest, breathing	-0.589	-0.602	-0.322	-0.713	-0.925	-0.518	-0.915
problems	(0.042)	(0.101)	(0.082)	(0.099)	(0.129)	(0.113)	(0.126)
Heart, blood	-0.442	-0.380	-0.534	-0.560	-0.459	-0.420	-0.391
	(0.043)	(0.222)	(0.130)	(0.090)	(0.102)	(0.093)	(0.098)
Stomach, liver,	-0.622	-1.352	-0.893	-0.485	-0.361	-0.589	-0.430
kidney	(0.052)	(0.179)	(0.112)	(0.115)	(0.136)	(0.131)	(0.136)
Diabetes	-0.545	-0.801	-0.741	-0.767	-0.555	-0.603	-0.150
	(0.091)	(0.386)	(0.278)	(0.226)	(0.228)	(0.173)	(0.198)
Nerves, anxiety,	-0.884	-0.756	-1.010	-0.982	-1.006	-0.865	-0.533
depression	(0.049)	(0.170)	(0.093)	(0.095)	(0.138)	(0.146)	(0.147)
Alcohol, drugs	-0.928	-1.178	-1.733	-0.805	-0.411	1.050	-
	(0.267)	(0.500)	(0.855)	(0.416)	(1.112)	(1.100)	
Epilepsy	-1.062	-1.185	-1.494	-0.655	-0.182	-0.949	-
	(0.155)	(0.320)	(0.262)	(0.290)	(0.768)	(0.551)	
Migraine, chronic	-0.210	-0.243	-0.270	-0.198	-0.044	-0.109	-0.333
headaches	(0.043)	(0.107)	(0.076)	(0.083)	(0.143)	(0.154)	(0.213)
Other	-0.809	-1.231	-0.966	-0.726	-0.727	-0.681	-0.726
	(0.057)	(0.203)	(0.114)	(0.114)	(0.157)	(0.152)	(0.149)
Other control variables							
Years of	0.029	0.045	0.027	0.014	0.056	0.022	0.051
education	(0.006)	(0.042)	(0.012)	(0.011)	(0.022)	(0.019)	(0.021)
Age	0.001	0.040	0.001	0.007	-0.005	-0.028	-0.024
	(0.001)	(0.015)	(0.007)	(0.008)	(0.015)	(0.016)	(0.011)
Married	-0.005	-0.093	0.067	-0.145	0.063	-0.119	-0.181
	(0.030)	(0.088)	(0.063)	(0.073)	(0.097)	(0.091)	(0.120)

Number of dependent children	-0.003 (0.016)	-0.021 (0.066)	-0.023 (0.023)	0.053 (0.043)	-0.254 (0.561)	-	-
Country of birth	-0.176 (0.448)	-0.318 (0.786)	0.661 (0.823)	-0.626 (0.766)	-	-	-
Location parameters							
α_1	-2.738 (0.099)	-2.104 (0.546)	-2.795 (0.265)	-2.827 (0.419)	-3.034 (0.985)	-4.776 (1.180)	-4.250 (0.932)
α_2	-1.801 (0.092)	-0.835 (0.525)	-1.795 (0.251)	-1.857 (0.411)	-2.088 (0.979)	-3.849 (1.175)	-3.422 (0.928)
α_3	-0.766 (0.090)	0.125 (0.523)	-0.795 (0.247)	-0.751 (0.408)	-0.929 (0.977)	-2.768 (1.171)	-2.316 (0.924)
α_4	0.800 (0.090)	1.779 (0.525)	0.765 (0.247)	0.868 (0.409)	0.707 (0.976)	-1.147 (1.168)	-0.905 (0.920)
Number of observations	5845	944	1742	1390	639	608	522
- Loglikelihood	5807.0	659.3	1705.1	1382.4	648.6	654.9	606.3
Pseudo R^2	0.342	0.268	0.309	0.377	0.387	0.331	0.338

Table 8 QALY weights by age group, 1991-1998

	All	*Age group*					
		25 or younger	*25 - 40*	*40 - 55*	*55 - 65*	*65 – 75*	*Older than 75*
			Men				
1991	0.818	0.889	0.858	0.825	0.760	0.670	0.663
1998	0.753	0.831	0.812	0.755	0.671	0.617	0.579
			Women				
1991	0.757	0.826	0.831	0.781	0.693	0.619	0.593
1998	0.691	0.775	0.755	0.694	0.650	0.587	0.514

Table 9 Quality adjusted life expectancy in years by gender and age, 1991-1998

	At birth	*At age*					
		20	*30*	*50*	*60*	*70*	*80*
				Men			
1991	60.6	43.5	39.3	19.1	12.3	7.4	4.2
1998	57.0	40.9	37.0	18.0	11.8	7.1	3.9
				Women			
1991	60.1	41.8	40.1	26.5	13.8	8.6	4.9
1998	55.4	40.3	36.9	19.1	13.0	7.9	4.3